

# RESERVE SPECIFICATION

## PATENT SPECIFICATION

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### COMPLETE SPECIFICATION.

#### Improvements in or relating to Couplings for Pipes and Pipe Fittings.

We, J. S. & F. FOLKARD LIMITED, a British Company, of Rectory Lane, Edgware, Middlesex, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to couplings for pipes and pipe fittings such as elbows, bends, T pieces and the like, the pipes and fittings being of the kind which are made of plastic material such as polythene and are, for example, adapted to be employed in water or other liquid or fluid circulation or supply systems.

It is the chief object of the invention to evolve a method of and means for effecting satisfactory connections between such pipes and pipe fittings.

According to the invention there is provided a coupling between two plastic pipes or between a plastic pipe and a plastic pipe fitting wherein a spigot formed at the end of one coupled member is entered into a socket formed at the end of the other coupled member to bring the front faces of radial flanges provided around the respective members into abutting contact, the rear or remote faces of said flanges being undercut or recessed to receive rigid annular supports which are axially pressed towards one another and into the rear flange recesses, to maintain said abutting contact, by the interaction of connecting collars surrounding the coupled members, said supports also serving to prevent radial collapse of the coupled members at the joint.

According to a further aspect of the invention a method of effecting a union or connection between two plastic pipes or a plastic pipe and a plastic fitting consists in providing one of the members to be con-

nected with a radial flange which projects beyond the adjoining member end to form a socket and providing the other of the members with a radial flange which is inset from the adjoining member end to form a spigot, the rear face of each said flange being recessed or undercut, and subsequently mating said spigot and socket to bring the forward faces of the two flanges into abutting relationship and applying a compressive force to said flanges by means engaging the recessed or undercut rear faces thereof.

In order that the said invention may be clearly understood and readily carried into effect, the same will be hereinafter more fully described with reference to the accompanying drawing which shows in section a connection between two pipes.

Referring now to the drawings, 10 denotes an externally threaded metal collar which is loosely located on a pipe 11. The pipe 11 which is formed of plastic material such as polythene is provided with a radially outwardly directed flange 12, the outer or forward face of which is so formed as to provide a flat annular sealing surface. The inner or rear face of the flange 12 is recessed or undercut so as to accommodate a rigid annular support in the form of a metal ring 13, the forward end of the metal collar 10 being so formed that it will, on tightening of the connection as hereinafter described, abut against the ring 13 and cause the latter to fit snugly in the recessed or undercut surface of said flange 12.

As will be apparent from the drawing the metal collar 10 constitutes the male member of the coupling or connection, the female member comprising an internally threaded collar 14, having an inwardly directed rim around the rear end which allows passage therethrough of a second pipe 15 which is to be connected to the pipe 11 and is also

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formed of a plastic material such as polythene. The pipe 15 is formed with a radially directed flange 16 similar to the flange 12 on the pipe 11, the rear face of said flange 16 being recessed or undercut to receive a rigid annular support in the form of a metal ring 17. In the embodiment illustrated in the drawing the pipe 15 is formed with a spigot portion such as 18 adapted to engage in a corresponding socket formed in the end of the pipe 11.

In order to effect the coupling or connection between the two pipes 11 and 15, the latter are disposed in axial alignment and the flanges 12 and 16 are brought into abutting relationship, the outer threaded collar 14 being thereafter engaged with the inner threaded collar 10. On tightening of the cap 14, the rings 13 and 17 will be pressed towards one another and into the recessed or undercut surfaces of the flanges 12 and 16 and the latter will be clamped tightly together. Due to the recessing or undercutting of the faces of said flanges and to the engagement therein of the respective rings 13 and 17, the ends of the pipes will be positively supported against radial collapse at the joint.

In certain cases it may be feasible to dispense with the ring 13 and so to chamfer the forward edge of the collar 10 that it will fit snugly into the recessed or undercut face of the flange 12 to constitute the rigid annular support therefor.

While the invention has been described above with reference to the connection or coupling of two pipes, it will be appreciated that a similar coupling may be employed to connect a plastic pipe to a plastic pipe fitting such as a bend, elbow or T junction. In such a case the metal collar 10 will be located at that end of the fitting to which the pipe is to be connected, said collar being incorporated into the fitting during the moulding thereof so that it is to all intents and purposes integral therewith. In such a case also a flange equivalent to the flange 12 would be provided at the end of the fitting.

What we claim is:—

1. A coupling between two plastic pipes or between a plastic pipe and a plastic pipe fitting wherein a spigot formed at the end of one coupled member is entered into a socket formed at the end of the other coupled member to bring the front faces of radial flanges provided around the respective

members into abutting contact, the rear or remote faces of said flanges being undercut or recessed to receive rigid annular supports which are axially pressed towards one another and into the rear flange recesses, to maintain said abutting contact, by the interaction of connecting collars surrounding the coupled members, said supports also serving to prevent radial collapse of the coupled members at the joint.

2. A coupling as claimed in Claim 1 wherein the connecting collars comprise an externally threaded collar located on one of the pipe or fitting members and an internally threaded collar, having an inwardly directed rim around one end, mounted on the other member, said collars being screwed together to apply the axial pressure.

3. A coupling as claimed in Claim 2, wherein the annular supports comprise separate metal rings which are adapted to be engaged respectively by the forward end of the inner collar and the inner surface of the outer collar rim.

4. A coupling as claimed in Claim 2, in which the inner collar is formed with a chamfered inner end adapted to constitute one of the annular supports.

5. A method of effecting a union or connection between two plastic pipes or a plastic pipe and a plastic fitting, such method consisting in providing one of the members to be connected with a radial flange which projects beyond the adjoining member end to form a socket and providing the other of the members with a radial flange which is inset from the adjoining member end to form a spigot, the rear face of each said flange being recessed or undercut, and subsequently mating said spigot and socket to bring the forward face of the two flanges into abutting relationship and applying a compressive force to said flanges by means engaging the recessed or undercut rear faces thereof.

6. A method of effecting a union or connection between two plastic pipes or a plastic pipe and a plastic fitting substantially as hereinbefore described.

7. A coupling between two plastic pipes or between a plastic pipe and a plastic pipe fitting substantially as hereinbefore described with reference to the accompanying drawing.

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#### PROVISIONAL SPECIFICATION.

#### Improvements in or relating to Couplings for Pipes and Pipe Fittings.

We, J. S. & F. FOLKARD LIMITED, a British Company, of Rectory Lane, Edgware, Middlesex, do hereby declare this

invention to be described in the following statement:—

This invention relates to pipes and pipe

5 fittings such as elbows, bends, T pieces and the like which are made of plastic material such as polythene and are for example adapted to be employed in water or other liquid or fluid circulation or supply systems.

It is the chief object of the invention to evolve a method of and means for effecting satisfactory connections between such pipes and pipe fittings.

10 According to the invention the respective ends of two pipes or of a pipe and a pipe fitting, which are to be interconnected are provided with corresponding radially outwardly directed flanges adapted to be brought into abutting relationship and means are provided whereby a compressive action may be exerted on the flanges thereby to clamp the same tightly together and at the same time to support and to prevent collapse of either or both of the abutting end portions of the pipes or of the pipe and fitting. Preferably the flanges at the abutting ends of the pipes or of the pipe and fitting are formed with recessed or undercut rear faces and the compression exerting means incorporate members adapted to engage in the recesses or undercut portions of such faces.

25 According to a further aspect of the invention a method of affecting a union or connection between two plastic pipes or a plastic pipe and a plastic fitting consists in flanging those ends of the pipes or of the pipe and pipe fitting so as to provide on each part a radially outwardly directed flange the rear face of which is recessed or undercut and subsequently bringing the forward faces of the two flanges into abutting relationship and applying a compressive force to said flanges by means engaging the recessed or undercut rear faces thereof.

40 In order that the nature of the invention may be more readily understood one embodiment thereof will now be indicated in greater detail.

45 In the following description, it will be assumed that it is desired to effect a junction between a pipe and a fitting, such as a bend, elbow or T junction, the pipe and the fitting being formed of a plastic material such as polythene. In such a case that end portion of the fitting to which the pipe is to be connected is provided with an external metal collar which is conveniently incorporated into the fitting during the moulding thereof so that it is to all intents and purposes integral therewith. The metal collar, which is externally screw threaded, is spaced slightly from the end of the fitting which latter is formed with a radially outwardly directed flange. The outer or forward face

of the flange is such as to provide a flat annular sealing surface around the end of the fitting but the inner or rear face of the flange is recessed or undercut, the forward end of the metal collar being correspondingly chamfered or so shaped that it will abut and fit snugly against the recessed or undercut face of said flange. The metal collar carried by the fitting is adapted to constitute the male member of a union or coupling, the female member of which comprises an internally threaded cap, the base of which is apertured to allow passage therethrough of the pipe which is to be connected to the fitting.

75 In order to effect the connection between the pipe and the fitting the internally threaded cap is located on the pipe together with a loose ring and the end of the pipe is flanged over to provide thereon a radially outwardly directed flange similar to that at the end of the fitting i.e. the outer or forward face of the pipe flange is formed to provide a flat annular sealing surface which will seat flush against and coincide with the outer or forward face of the flange on the fitting while the rear face of said pipe flange is formed with a recessed or undercut surface. The loose ring which is so dimensioned that it will be accommodated in the internally threaded cap is so formed that on being brought adjacent to the rear face of the pipe flange it will abut and fit snugly against the recessed or undercut surface thereof. With the respective outer or forward faces of the pipe and fitting flanges brought into abutting relationship and into coincidence the threaded cap is engaged with the threaded metal collar and is tightened up thereon. On such tightening of the threaded cap the loose ring will be forced tightly against the rear face of the pipe flange and the two flanges will be clamped tightly together by virtue of the action of the ring and the forward end of the metal collar against the rear faces of their respective flanges.

105 Due to the shape of the rear faces of the respective flanges and to the corresponding shapes of the forward end of the metal collar and of the ring the ends of the fitting and the pipe will be positively supported against collapse by the compression assemblies.

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1 SHEET

This drawing is a reproduction of  
the Original on a reduced scale.

